

ABSTRACT OF THE DISCLOSURE

A system and method for opening a lumen in an occluded blood vessel, e.g., a coronary bypass graft, of a living being. The system comprises an atherectomy catheter having a working head, e.g., a rotary impacting impeller, and a debris extraction sub-system. The atherectomy catheter is located within a guide catheter. The working head is arranged to operate on, e.g., impact, the occlusive material in the occluded vessel to open a lumen therein, whereupon some debris may be produced. The debris extraction sub-system introduces an infusate liquid at a first flow rate adjacent the working head and withdraws that liquid and some blood at a second and higher flow rate, through the guide catheter to create a differential flow adjacent the working head, whereupon the debris is withdrawn in the infusate liquid and blood for collection outside the being's body. The introduction of the infusate liquid may also be used to establish an unbalanced flow adjacent the working head to enable the atherectomy catheter to be steered hydrodynamically. A guide wire having an inflatable balloon on its distal end may be used with the atherectomy catheter to block the flow of debris distally, while enabling distal tissues to be perfused with an oxygenating liquid. At least one flow control port may be provided in the guide catheter to prevent collapse of the vessel being revascularized. A cradle is provided to fix the guide catheter and guide wire in position within the body of the being while enabling the atherectomy catheter to be advanced along the guide wire and through the guide catheter.